

C12. CHAPTER 12
REAL PROPERTY KNOWN OR SUSPECTED TO CONTAIN MUNITIONS AND
EXPLOSIVES OF CONCERN AND CHEMICAL AGENTS

C12.1. SCOPE

This chapter:

C12.1.1. Establishes explosives safety standards that, when applied, will protect people and real property from explosive and CA hazards associated with:

C12.1.1.1. Real property known or suspected to contain:

C12.1.1.1.1. Munitions and explosives of concern (MEC).

C12.1.1.1.2. CA in other than munitions configurations (e.g., DoD laboratory vials, CA identification sets, one-ton containers, CA-contaminated soil).

C12.1.1.2. Munitions responses to MEC. (A munitions response to CA-filled munitions will be addressed as a chemical warfare material (CWM) response.)

C12.1.1.3. CWM responses.

C12.1.2. Establishes a process for determining site-specific actions that, when taken, will:

C12.1.2.1. Ensure explosives safety is addressed throughout munitions responses to MEC.

C12.1.2.2. Ensure CA safety and, when applicable, explosives safety is addressed throughout CWM responses.

C12.1.2.3. Result in DDESB approval of required safety submissions for munitions responses to MEC and for CWM responses. (See section C12.5. for required safety submission and their contents.)

C12.1.2.4. Document and report completion of:

C12.1.2.4.1. Munitions responses to MEC.

C12.1.2.4.2. CWM responses.

C12.1.3. Does not apply to:

C12.1.3.1. Operational ranges, with the exception of military munitions burial sites located on such ranges.

C12.1.3.2. Explosives or munitions emergency responses.

C12.2. EXPLOSIVES SAFETY STANDARDS FOR THE IDENTIFICATION AND CONTROL OF AREAS KNOWN OR SUSPECTED TO CONTAIN MEC OR CA

To ensure explosives and CA safety risk is identified and controlled on real property currently or formerly under the jurisdiction, custody, or control of a DoD Component, DoD Components must:

C12.2.1. Identify all areas known or suspected to present explosive or CA hazards (Geographic Information Systems) should be used:

C12.2.1.1. In installation master plans for active installations. (In some cases, these areas are also required to be identified in other documents.)

C12.2.1.2. In DoD's Military Munitions Response Site Inventory for those sites that are included in the Military Munitions Response Program (see Management Guidance for the Defense Environmental Restoration Program (DERP) (Reference (~~ag~~ai))) and section 2710(a) of title 10, U.S.C. (Reference (~~ah~~aj))).

C12.2.2. Maintain permanent records of those areas identified pursuant to subparagraph C12.2.1. and ensure such records are readily available to current and future users of the property. Records should be retained for areas such as operational ranges, former ranges, current or former munitions manufacturing facilities, current or former sites used for munitions demilitarization activities, and locations previously used for the burial of munitions. Records shall:

C12.2.2.1. When practicable, include the nomenclature and the known or suspected location.

C12.2.2.2. Summarize any clearance or response (removal or remediation) actions, or explosives or munitions emergency responses previously conducted within the area.

C12.2.3. Prohibit unnecessary access and take appropriate action to deter unauthorized access to areas under DoD control that are known or suspected of containing potential explosive or CA hazards. Such actions may include establishing access controls (e.g., fencing the area, establishing roving security patrols), which may be risk-based, or providing public notifications of any potential hazards (e.g., posting unexploded ordnance (UXO)-hazard warning signs, conducting UXO-safety education programs). When used, signs must be kept legible and, when appropriate, in the predominant languages of the region, or as pictograms. When the Department of Defense does not ~~have ownership, exercise~~ jurisdiction, *custody*, or control ~~of~~ over the area (e.g., Formerly Used Defense Sites (FUDS)), the responsible DoD Component shall, at a minimum, provide written notification of the potential explosive or CA hazards to the property owner and any known tenants. A record of this notification must be maintained as a permanent record. (See subparagraph C12.2.2.)

C12.2.3.1. DoD Components should, unless there is evidence to the contrary, assume the following areas present explosive hazards:

C12.2.3.1.1. Impact areas on operational ranges. Exceptions are ranges known to have been exclusively used for training with only small arms ammunition.

C12.2.3.1.2. Former ranges known or suspected to contain MEC.

C12.2.3.1.3. Outdoor demolition areas, to include locations used for open burning (OB) or open detonation (OD).

C12.2.3.1.4. Areas that are associated with military munitions production, demilitarization, renovation, or similar processes (e.g., operating buildings and any installed equipment) that generated explosives residues (e.g., dust, vapors, liquids) and that might have become contaminated with such residues in concentrations sufficient to present explosive hazards, to include areas receiving processing wastewater (e.g., settling ponds, drainage swales).

C12.2.3.2. DoD Components should, unless there is evidence to the contrary, assume the following areas present CA hazards:

C12.2.3.2.1. Former CWM or CA burial sites.

C12.2.3.2.2. Former CWM or CA disposal areas.

C12.2.3.2.3. Former CWM impact areas.

C12.2.3.2.4. Former training areas used for training with CWM or CA.

C12.2.3.2.5. Former CWM or CA production and demilitarization facilities.

C12.2.3.3. When access to areas known or suspected to present explosive or CA hazards is necessary, a risk assessment to evaluate the potential hazards associated with the proposed activity shall be completed and methods to mitigate any potential exposures shall be implemented before access is allowed. (When access is necessary to real property not under DoD ownership, custody, or control, the DoD Component should obtain a right of entry for the property.)

C12.2.4. Prohibit the disposal (e.g., burying, dumping) of military munitions on land or in water except when specifically authorized by the DoD Component. Such disposal actions must comply with applicable regulatory requirements. This prohibition does not preclude:

C12.2.4.1. The covering of munitions with earth to control fragments and noise during authorized destruction by detonation.

C12.2.4.2. The use of *in situ* capping when implemented as an engineered remedy under an authorized response action.

C12.3. EXPLOSIVES AND CA SAFETY ASPECTS OF RESPONSE ACTIONS

C12.3.1. General.

C12.3.1.1. Plans for munitions responses to MEC or CWM responses shall:

C12.3.1.1.1. Ensure close coordination, as applicable, between DoD explosives and CA safety organizations, DoD environmental organizations, and appropriate regulatory agencies and stakeholders.

C12.3.1.1.2. Specify those actions necessary to protect DoD personnel, installation-related personnel, and the public from exposure to explosive and CA hazards.

C12.3.1.1.3. Provide the design for and explain the execution of:

C12.3.1.1.3.1. Munitions responses, when MEC has been determined to present an unacceptable risk.

C12.3.1.1.3.2. CWM responses, when CA, regardless of configuration, has been determined to present an unacceptable risk.

C12.3.1.1.4. Explain how the selected response actions will achieve a degree of protectiveness necessary for the current, determined, or reasonably anticipated future land use.

C12.3.1.1.4.1. Provide the rationale for selection of technologies to be used to detect anomalies that can indicate the presence of MEC or CA, regardless of CA configuration.

C12.3.1.1.4.2. Address how periodically (e.g., during 5-year reviews or consistent with long-term monitoring agreements) completed response actions will be reviewed to ensure the response remains effective. The need for such reviews is particularly important in areas where natural phenomena (e.g., frost heave, soil erosion, droughts, or tidal action) could expose MEC or CA, regardless of CA configuration, or where Land Use Controls (LUC) constitute a major element of the response. These reviews shall consider:

C12.3.1.1.4.2.1. The explosives safety aspects of munitions responses to MEC.

C12.3.1.1.4.2.2. The CA safety and, when applicable, the explosives safety aspects of CWM responses.

C12.3.1.1.5. Address how the personnel qualification provisions of DDESB TP No. 18 (Reference (~~ai~~ak)) will be met.

C12.3.1.1.6. Be approved by the DDESB for compliance with these Standards.

C12.3.1.1.7. Provide for the submission of an After Action Report (AAR) to the DDESB upon completion of the response. AAR are not provided for DDESB approval, but are used to close out files maintained by the DDESB Staff.

C12.3.1.2. Residual Explosive and CA Hazards

C12.3.1.2.1. Some areas that the military has used for munitions-related activities (e.g., live-fire training or testing, OB/OD) or for CA-related activities may not be appropriate, even after the performance of response activities, for certain uses (e.g., residential development). Such areas include former military range impact areas on which the military has used munitions containing either high explosives or CA and sites used for either OB or OD. Such areas may, after a response, be better suited for uses that restrict or limit intrusive activities (e.g., wildlife refuges, surface recreational areas).

C12.3.1.2.2. Some MEC or CA, regardless of CA configuration, might not be detected or removed during a response. Although residual risks can be managed (e.g., by use of agreed-upon LUC, to include safety education; recurring reviews; and construction support), residual hazards might still exist.

C12.3.1.2.3. From an explosives and, when applicable, CA safety perspective, the degree to which MEC or CA removal is undertaken depends largely on the current, determined, or reasonably anticipated future land use. When MEC or CA, regardless of CA configuration, cannot be removed to the degree necessary to safely allow the current, determined, or reasonably anticipated future land use, the use must be changed or appropriately restricted to obtain DDESB approval of the relevant plan.

C12.3.1.3. When DoD does not control the land and the imposition of LUC is not possible (e.g., on FUDS), the responsible DoD Component should, at a minimum, provide the property owner, and any known tenants, written notification of the potential residual explosive or CA hazards and the risks inherent in any use of property that is inconsistent with those hazards.

C12.3.2. Explosives Safety and CA Safety Aspects in the Selection and Design of Responses

C12.3.2.1. Explosives safety must be addressed in the selection and design of a munitions response to MEC. CA safety, and when applicable, explosives safety must be addressed in the selection and design of a CWM response. The protection afforded by a response must be consistent with the current, determined, or reasonably anticipated land use. The design of the response that is included in the required submission must consider the site-specific information below.

C12.3.2.1.1. Historical Information. Historical information, which is documented in a written report, is gathered through a records search, to include the permanent records outlined in section C12.2., and interviews. The following information is required:

C12.3.2.1.1.1. The boundaries of the response area. For munitions responses, the Munitions Response Area (MRA) boundaries and, when appropriate, the boundaries of any Munitions Response Sites (MRS) (e.g., firing points, impact areas, and burial sites) within the MRA are required.

C12.3.2.1.1.2. The type of MEC known or suspected to be present based on the types of munitions-related operations, training, or testing previously performed in the MRA or MRS.

C12.3.2.1.1.3. The type and configuration of any CA known or suspected to be present.

C12.3.2.1.2. Land Use. Land use is the current, determined, or reasonably anticipated future use of real property. Because portions of the response area (e.g., the MRA or MRS) might be used differently (e.g., public highway, wildlife refuge, sports field, industrial complex), different responses actions (e.g., surface removal, subsurface removal, no removal, remedial response) may be appropriate within any given response area.

C12.3.2.1.2.1. Where the land use is, or will be, limited to surface activities, the munitions or CWM response may only involve removing surface MEC or surface CA (i.e., a surface removal). This removal may be technology-aided.

C12.3.2.1.2.2. When the land use will involve or allow intrusive activities to occur, the response will normally require a subsurface removal, and may require follow-on construction support.

C12.3.2.1.2.3. Where the current, determined, or reasonably anticipated land use is compatible with the explosive or CA hazards present or suspected, a response action to remove any explosive or CA hazards may not be necessary.

C12.3.2.1.2.4. Where a response would adversely impact natural or cultural resources, a removal action may not be practical.

C12.3.2.1.3. Results of Onsite Investigations. These results should be used to validate and augment information discovered during the historical review and to determine the specific boundaries of the response area (e.g., the boundary of an MRA or of any MRS within an MRA).

C12.3.2.1.4. Analysis. A detailed analysis of available records, technical data, and the results of onsite investigations. This analysis should evaluate:

C12.3.2.1.4.1. The types of MEC or CA, regardless of CA configuration, known to be present, to include its technical characteristics (e.g., filler, fuzing) and estimated distribution.

C12.3.2.1.4.2. The potential explosive or CA hazards present.

C12.3.2.1.4.3. Physical site characteristics (e.g., flora and fauna (including endangered species), cultural, geological, topographical, hydrological).

C12.3.2.1.4.4. Persons potentially endangered.

C12.3.2.1.4.5. Information from previous or current responses.

C12.3.2.1.5. LUC. The appropriateness and effectiveness of LUC to manage any residual explosives safety or CA safety risks.

C12.3.2.1.6. Technology. The applicability, capabilities, and limitations of available technologies (e.g., detection, discrimination, removal).

C12.3.2.1.7. Other relevant factors.

C12.4. SPECIAL CONSIDERATIONS

C12.4.1. Explosive Soil

C12.4.1.1. Because of some past munitions-related activities (e.g., settling ponds or explosives sumps at munitions production or demilitarization facilities), concentrations of explosives in soil (e.g., sand, sludge, clay) can exist such that the mixture itself presents an explosive hazard. Such mixtures are referred to as “explosive soil.”

C12.4.1.2. The NEWQD of explosive soil is the weight of the mixture multiplied by the explosives concentration (e.g., 1,000 lbs [454 kg] of explosive soil that is 10 percent TNT has an NEWQD of 100 lbs [45.4 kg]).

C12.4.1.3. The concentration necessary to present an explosive hazard depends on the distribution and type of explosives in the soil and the soil’s characteristics.

C12.4.1.3.1. Primary (Initiating) Explosives

C12.4.1.3.1.1. Soil containing 2 percent or more by weight of any primary explosive or mixture of primary explosives presents an explosive hazard and shall be treated as HD 1.1.

C12.4.1.3.1.2. Soil containing less than 2 percent by weight of any primary explosive does not present an explosive hazard.

C12.4.1.3.2. Secondary Explosives.

C12.4.1.3.2.1. Secondary explosives are much less sensitive than primary explosives.

C12.4.1.3.2.2. Soil containing 10 percent or more by weight of either any secondary explosives or a mixture of secondary explosives presents an explosive hazard and shall be treated as HD 1.1.

C12.4.1.3.2.3. Soil containing less than 10 percent by weight of any secondary explosive or a mixture of secondary explosives does not present an explosive hazard.

C12.4.1.3.3. Nitroglycerin, Nitrocellulose, and Nitroguanidine

C12.4.1.3.3.1. Soil containing 10 percent or more by weight of nitroglycerin, nitrocellulose, or nitroguanidine presents an explosive hazard and shall be treated as HD 1.1.

C12.4.1.3.3.2. Soil containing less than 10 percent by weight of nitroglycerin, nitrocellulose, or nitroguanidine does not present an explosive hazard. (Care must be taken when applying this threshold rule to less-permeable soils, such as clay, that may cause nitroglycerin to pond, rather than be absorbed.)

C12.4.1.3.4. Other Energetic Materials Mixtures. The potential explosive hazard of such mixtures in soil may be unknown and may require testing. If the hazard is unknown, manage soil mixtures containing only propellants as secondary explosives, and all other soil mixtures containing energetics (e.g., liquid propellants) as primary explosives.

C12.4.2. Real Property (Buildings and Installed Equipment). Military munitions operating buildings (e.g., munitions production or demilitarization facilities) and any installed equipment may contain residual explosives that present an explosive hazard. Of particular concern are building features (e.g., floors, roofs, walls, drains, internal and external piping, ventilation systems) in which explosives residues could present explosive hazards and industrial equipment, particularly equipment with internal cavities from facilities used in munitions production or demilitarization operations (e.g., cast loading or milling, steam-out) that generated explosives residues (e.g., dust, vapors, liquids). To the extent such buildings or installed equipment is believed to present an explosive or CA hazard, DoD Components must submit to the DDESB for review and approval the explosives or CA safety provisions of any required plans for transfer or use of such buildings and installed equipment before use or transfer for purposes incompatible with the presence of the explosive hazard (see Chapter 16).

C12.4.3. Construction Support

C12.4.3.1. DoD Components should consider the level of construction support required, based on site-specific data, during the below activities.

C12.4.3.1.1. Intrusive activities (e.g., building construction, laying utilities, or road improvements) on property known or suspected to contain MEC or CA, regardless of CA configuration, or on property on which residual explosive or CA hazards may exist.

C12.4.3.1.2. The removal or remediation of debris or media in areas where there is a probability of encountering MEC (e.g., former OB/OD grounds) or CA.

C12.4.3.2. The responsible authority (e.g., installation commander or designated representative) will determine whether such support is required and the level of effort of required support on a case-by-case basis (see subparagraph C12.5.7.). Construction support is determined by the probability of encountering MEC or CA, regardless of CA configuration.

C12.4.3.2.1. Low Probability. “On-call” construction support is appropriate.

C12.4.3.2.1.1. A “low” determination may only be assigned to those areas for which a search of available historical records and onsite investigation data indicates that, given the military or munitions-related activities that occurred at the site, the likelihood of encountering MEC or CA, regardless of CA configuration, is low.

C12.4.3.2.1.2. Munitions-related activities that may merit a “low” determination include, but are not limited to, the former use of the area for live-fire training exclusively with small arms ammunition; for maneuver training, to include maneuver training involving the use of smokes, pyrotechnics, and simulators; as firing points; for munitions inspection, handling, storage, or transfers, to include residue points and inert storage yards; for air defense; or as munitions operating facilities. The exceptions are facilities in which the processes used might have resulted in the generation of concentrations of munitions constituents high enough to present an explosive hazard. Areas on which previous responses have been completed may also qualify for “low” determinations.

C12.4.3.2.1.3. Immediate reassessment by the responsible authority of the level of construction support required is appropriate upon the discovery of MEC or CA, regardless of CA configuration.

C12.4.3.2.2. Moderate to High Probability. “Onsite” construction support should be provided to remove explosive or CA hazards in the construction footprint, per a DDESB-approved ESS or CSS, before intrusive construction or other intrusive activities occur. (NOTE: When the depth of intrusive activities exceeds the detection limits of the detection equipment used, soil should be removed in layers to allow detection and removal of MEC or CA, regardless of CA configuration, in the construction footprint.)

C12.4.3.2.2.1. A “moderate to high” determination may be assigned to those areas for which a search of available historical records or onsite investigation data indicates that, given the military or munitions-related activities that occurred at the site, there is more than a low probability that MEC or CA are present.

C12.4.3.2.2.2. Munitions-related activities that may merit a “moderate to high” determination include, but are not limited to, the former use of the area for live-fire training other than exclusively with small arms ammunition; as operational range impact areas; for OB or OD of munitions; as munitions operating facilities where processes used might have resulted in the

generation of concentrations of munitions constituents high enough to present an explosive hazard; for munitions burial; or for any activities involving CA.

C12.4.4. Anomaly Avoidance

C12.4.4.1. The use of anomaly avoidance techniques is appropriate on properties known or suspected to contain UXO or other munitions (e.g., Discarded Military Munitions (DMM)) that may have experienced abnormal environments to allow the below activities in such areas while avoiding surface explosive or CA hazards and, when necessary, subsurface anomalies. Anomaly avoidance is used when:

C12.4.4.1.1. Surface MEC or CA, regardless of CA configuration, will be avoided during any activities that require entry to the area (e.g., collections of environmental samples, the conduct of cultural resource studies).

C12.4.4.1.2. Subsurface anomalies will be avoided during any intrusive work (e.g., drilling environmental monitoring wells).

C12.4.4.2. During anomaly avoidance:

C12.4.4.2.1. Escort support must be provided by EOD personnel, or:

C12.4.4.2.1.1. Within areas known or suspected to contain MEC, excluding CA, regardless of configuration, by:

C12.4.4.2.1.1.1. UXO-qualified personnel.

C12.4.4.2.1.2. UXO Technician I personnel under the supervision of UXO-qualified personnel. The responsible commander or authority may, based on a risk assessment and implementation of methods to mitigate any potential exposures, approve UXO Technician I personnel to perform escort duties without supervision.

C12.4.4.2.1.2. Within areas known or suspected to contain CA, regardless of configuration, to include areas where such CA is commingled with other MEC, by UXO-qualified personnel trained in CWM responses.

C12.4.4.2.2. Explosives safety requires that discovered surface MEC or CA, regardless of CA configuration, be avoided and their location noted and reported to appropriate authorities.

C12.4.4.2.3. Detected subsurface anomalies must not be investigated, but they shall be marked, when appropriate, and avoided.

C12.4.5. Frost Heave. This phenomenon occurs when three conditions are met: (a) freezing temperatures are present in the soil column; (b) the soil is frost susceptible; and (c) there is sufficient moisture present in the soil to cause soil movement upon ice crystal formation. These

three factors will be evaluated to assess the likelihood of frost heave moving residual MEC or CA, regardless of CA configuration, upward through the soil column. Where frost heave may have such an effect, explosives safety requires procedures be implemented to monitor the effectiveness of response actions for the affected area. (Other naturally occurring phenomena (e.g., erosion, tidal changes) could necessitate similar monitoring.)

C12.4.6. Soil Containing CA

C12.4.6.1. The criteria below apply to soil known to be contaminated with one or more of the following CA: mustard, L, GD, GA/GB, O-cyclohexyl Methylphosphono-fluoridate (GF) (common name is cylcosarin), or VX. This criteria applies only if a headspace measurement is at or above the Short Term Exposure Limits (STEL) (see subparagraph C12.4.6.4.1.) or a laboratory extraction sample is at or above the Hazardous Waste Control Limit (HWCL) for solid materials: mustard, L, GD, GA/GB, GF, or VX. Certain CA-related operations, such as taking core samples at a suspect CWM or CA burial site, require laboratory extraction sampling.

C12.4.6.2. Soil for which no evidence exists of CA contamination does not require treatment or remediation.

C12.4.6.3. An appendix to the site's Site Safety and Health Plan that addresses the procedures (e.g., personnel protection, monitoring, sampling, packaging, disposal) for the handling and disposition of CA-contaminated soil is required for environmental responses to soil known or suspected to be contaminated with CA.

C12.4.6.4. Air-sampling methods will be used to detect CA during CWM responses. When soil contaminated with CA is encountered and an air concentration is at or above the STEL based on off-gas monitoring of the headspace of a container or of air in the immediate area of the operation, appropriate personnel protective measures shall be employed and the CA-contaminated soil shall be decontaminated to below the HWCL levels of subparagraph C12.4.6.4.2. unless the CA-contaminated soil may be shipped per DOT regulations and approvals and a receiving Treatment Storage Disposal Facility (TSDF) is qualified to process the CA-contaminated soil per Federal, State, interstate, and local laws and regulations. If air monitoring is below the STEL, soil samples will be taken to determine if the soil exceeds the HWCL.

C12.4.6.4.1. The STELs for air sampling CA contamination are:

C12.4.6.4.1.1. 0.003 milligrams per cubic meter (mg/m^3) for mustard (H, HD, or HT) agent.

C12.4.6.4.1.2. 0.003 mg/m^3 for L.

C12.4.6.4.1.3. 0.0002 mg/m^3 for GD/GF.

C12.4.6.4.1.4. 0.0001 mg/m^3 for GA/GB.

C12.4.6.4.1.5. 0.00001 mg/m³ for VX.

C12.4.6.4.2. When soil contaminated with CA is encountered at or above the HWCL levels listed in Table C12.T1. as determined by laboratory extraction and analysis of soil samples, the CA-contaminated soil shall be decontaminated to below the levels listed for the HWCL, or to a level required by Federal, State, interstate, and local laws and regulations.

Table C12.T1. Hazardous Waste Control Limits (HWCL)

Standard Name	Population	Exposure Scenario	Chemical Agent per Soil Mass (mg/kg)					
			GD/GF	GA	GB	VX	H, HD & HT	L
HWCL	Worker (Civilian/DoD)	Possible occasional exposure at hazardous waste treatment facility	52	680	320	10	6.7	37

C12.4.6.5. Once decontaminated to the appropriate level, the CA-contaminated waste must be packaged in a DoT-approved shipping container and shipped to an approved, licensed treatment or disposal facility per Federal, State, and local laws and regulations. Records of disposition must be maintained by the generator per Federal, State, interstate, and local laws and regulations.

C12.4.6.6. Soil that is found to be below the HWCL, but above the levels of subparagraph C12.4.6.7., shall be disposed of as hazardous waste per federal, state, interstate, and local laws and regulations or treated by an approved, licensed treatment or disposal facility to the levels of subparagraph C12.4.6.7.

C12.4.6.7. Soil that is at or below the Health-Based Environmental Screening Levels (HBESL) for residential or industrial soil listed in Table C12.T2., as appropriate, may be used or disposed of per federal, state, interstate, and local laws and regulations (e.g., returned to the hole or disposed of as non-contaminated, non-hazardous material).

Table C12.T2. Health-Based Environmental Screening Levels (HBESL)

Standard Name	Population	Exposure Scenario	Chemical Agent per Soil Mass (mg/kg)					
			GD/GF	GA	GB	VX	H, HD & HT	L
HBESL - Residential	General Population (adults and children)	Daily Exposure (lifetime)	0.22	2.8	1.3	0.042	0.01	0.3
HBESL - Industrial	General Adult Population	Frequent Exposures (250 days per year for 30 years)	5.2	68	32	1.1	0.3	3.7

C12.5. REQUIRED SAFETY SUBMISSIONS (ESS, CSS AND EXPLOSIVES OR CWM SITE PLANS)

C12.5.1. Explosives and CA safety requires:

C12.5.1.1. A DDESB-approved site plan, ESS, or CSS before the start of munitions response activities (e.g., field activities) that involve the placement of explosives on a site; the intentional physical contact with MEC or CA, regardless of CA configuration; or the conduct of ground-disturbing or other intrusive activities in areas known or suspected to contain MEC or CA, regardless of CA configuration; or

C12.5.1.2. A Service-level explosives safety office review and approval pending DDESB review and approval of the submission, provided the submission is at the DDESB for review and approval and the Service accepts that the DDESB approval may impose different or additional munitions or CWM response requirements.

C12.5.2. A DDESB-approved ESS or CSS, or an explosives or CWM site plan, or a combination thereof, is required for:

C12.5.2.1. MRS investigation or characterization (e.g., Engineering Evaluation/Cost Analysis (EE/CA) or Remedial Investigation/Feasibility Study (RI/FS)) that involve the intentional physical contact with MEC or CA, regardless of CA configuration (see subparagraph C12.5.4.).

C12.5.2.2. A determination of “No DoD Action Indicated” (NDAI) or “No Further Action” (NOFA) (see subparagraph C12.5.5.).

C12.5.2.3. Time Critical Removal Action (TCRA) (see subparagraph C12.5.6.).

C12.5.2.4. Construction support (see subparagraph C12.5.7.).

C12.5.2.5. Execution of the explosives safety or CA safety aspects of the selected response (see subparagraphs C12.5.8. and C12.5.9.)

C12.5.3. A DDESB-approved ESS or CSS, or an explosives or CWM site plan is not required for:

C12.5.3.1. Munitions or explosives emergency responses.

C12.5.3.2. Preliminary assessments or site inspections (e.g., site visits in conjunction with an archival search) when intentional physical contact with MEC or CA, regardless of CA configuration, or the conduct of ground-disturbing or other intrusive activities are not intended (see subparagraph C12.5.3.6.).

C12.5.3.3. Clearance activities on operational ranges. (Addressing military munitions burial sites on operational ranges is not a clearance activity.)

C12.5.3.4. Munitions responses on former ranges used exclusively for training with small arms ammunition.

C12.5.3.5. On-call construction support.

C12.5.3.6. Anomaly avoidance activities.

C12.5.4. MRS Investigation or Characterization. An explosives or, when appropriate, a CWM site plan is required for MRS investigations or characterizations that involve intentional physical contact with MEC or CA, regardless of CA configuration. Such site plans will address areas (e.g., magazines) used for the storage of commercial or military demolition explosives, MEC or CA, regardless of CA configuration; planned or established demolition or disposal areas; and the MRA, MRS, or response area boundaries. (See subparagraph C12.5.8.3.7.) MRS investigation and characterization are used to collect the information needed to design the required munitions response and to prepare, as appropriate, an ESS or CSS for the selected response.

C12.5.5. NDAI or NOFA ESS or CSS. When a NDAI or NOFA decision is made for an MRA or MRS or for a response area, an ESS or CSS must, at a minimum, provide:

C12.5.5.1. The site identification (e.g., name, unique identifier).

C12.5.5.2. The site location.

C12.5.5.3. Justification for the decision.

C12.5.6. TCRA ESS or CSS. To expedite the approval process, DoD Components are encouraged to submit TCRA ESS or CSS electronically through their chain of command to the DDESB. A TCRA ESS or CSS must, at a minimum, identify or provide:

C12.5.6.1. The site identification (e.g., name, unique identifier).

C12.5.6.2. The TCRA's location.

C12.5.6.3. The TCRA's purpose, in sufficient detail to explain the reason the TCRA was authorized.

C12.5.6.4. The estimated date that the TCRA will be:

C12.5.6.4.1. Initiated.

C12.5.6.4.2. Completed.

C12.5.6.5. The munition with the greatest fragmentation distance (MGFD)

C12.5.6.6. ESQD maps (see subparagraph C12.5.8.3.7.) that show the minimum separation distances for:

C12.5.6.6.1. The removal area within an MRA or MRS or within a response area for:

C12.5.6.6.1.1. Unintentional detonations (see subparagraph C12.5.8.3.2.1.).

C12.5.6.6.1.2. Intentional detonations (see subparagraph C12.5.8.3.2.2.).

C12.5.6.6.2. Areas or magazines for the storage of demolition explosives, MEC, or CA, regardless of CA configuration.

C12.5.6.7. Actions and controls to be implemented (e.g., surface removal, evacuation, fences) as part of the TCRA.

C12.5.6.8. DDESB-approved engineering controls (see Reference (j)) to be used, if any.

C12.5.6.9. A point of contact for additional information.

C12.5.7. Construction Support ESS or CSS. A safety submission is required for construction support where the probability of encountering MEC or CA, regardless of CA configuration, is considered moderately or highly probable. This submission must provide the information outlined in paragraphs C12.5.8. and C12.5.9., as appropriate. The information may be tailored based on site-specific conditions.

C12.5.8. Selected Munitions Response ESS. The below information is required in an ESS for the execution of the selected munitions response to address MEC. When CA, regardless of configuration, is known or suspected to be present along with explosive hazards, or when it is explosively configured, a submission that provides both explosives safety (as outlined in this section) and CA safety information (see paragraph C12.5.9.) is required.

C12.5.8.1. Background. The ESS must provide, for informational purposes, a brief description of the reasons for the munitions response. The ESS must identify or provide:

C12.5.8.1.1. The scope of munitions response activities.

C12.5.8.1.2. Any significant differences in munitions response activities that will occur within the MRA or MRS. (NOTE: The ESS must identify significant differences in the current, determined, or reasonably anticipated future land use of different sections of the property, significant differences in the types or conditions of MEC expected to be encountered, and any sections of the MRA that will not require munitions response activities.)

C12.5.8.2. Maps. The following maps and related information must be furnished:

C12.5.8.2.1. Regional Map. A map depicting the regional location of the MRA or MRS (e.g., a state or boundary illustration map with the MRA indicated on it).

C12.5.8.2.2. MRA or MRS Maps. Maps of the area or areas at which the munitions response is planned. These maps and related information shall indicate:

C12.5.8.2.2.1. Areas that:

C12.5.8.2.2.1.1. Contain or are suspected of containing MEC that the ESS addresses.

C12.5.8.2.2.1.2. Were suspected of containing MEC, but that research or site characterizations have subsequently shown do not contain such.

C12.5.8.2.2.1.3. The ESS does not address, but that either a previous safety submission addressed or a future safety submission will address.

C12.5.8.2.2.2. The current, determined, or reasonably anticipated future land use of property within the MRA or MRS that is known or suspected to contain MEC that the ESS addresses.

C12.5.8.2.2.3. The ownership and land use of adjacent properties, as appropriate.

C12.5.8.2.2.4. Any other situation that may influence or require consideration during the response (e.g., flight corridors, traffic routes).

C12.5.8.3. ESQD

C12.5.8.3.1. The planned locations for MEC response-related operations must be shown on ESQD maps. (NOTE: Preliminary site work, such as surveying, laying search lanes, and detecting anomalies does not require establishment of an ESQD arc.)

C12.5.8.3.2. ESQD arcs for both intentional and unintentional detonations must be established and shown on ESQD maps for each MRS.

C12.5.8.3.2.1. The Minimum Separation Distance (MSD) for unintentional detonations, which may be reduced by employing the engineering controls listed in Reference (j) or other DDESB-approved engineering controls, for:

C12.5.8.3.2.1.1. Nonessential personnel is the greatest distance of:

C12.5.8.3.2.1.1.1. Blast overpressure, as computed by using the formula: $D = 40W^{1/3}$ [$D = 15.87Q^{1/3}$].

C12.5.8.3.2.1.1.2. The calculated HFD as provided in Reference (~~pr~~).

C12.5.8.3.2.1.2. Team Separation Distance (TSD) is based on blast overpressure, as computed by the formula: $D = 40W^{1/3}$ [$D=15.87Q^{1/3}$].

C12.5.8.3.2.2. The MSD for intentional detonations (see Chapter 9), which may be reduced by employing the engineering controls listed in Reference (j) or other DDESB-approved engineering controls, is the greatest distance of:

C12.5.8.3.2.2.1. Blast overpressure, as computed by using the formula: $D = 328W^{1/3}$ [$D=130.16Q^{1/3}$].

C12.5.8.3.2.2.2. The calculated MFD, as provided in Reference (pr).

C12.5.8.3.3. MEC, Excluding CA-filled Munitions, Hazard Classification, and Storage

C12.5.8.3.3.1. Recovered MEC, other than Recovered CWM (RCWM), shall be managed as HD 1.1, unless assigned differently by an Interim Hazard Classification (IHC) authority, and assigned an appropriate CG. When storage at the MRA or MRS is necessary, recovered MEC must be stored separately from serviceable munitions and from any RCWM. (NOTE: For RCWM, see subparagraph C12.5.9.6.)

C12.5.8.3.3.2. Nonessential personnel in structures shall be afforded protection equivalent to IBD from storage locations. Nonessential personnel in the open shall be afforded protection equivalent to PTRD from storage locations. (See Chapter 9.) There is no required ESQD protection for essential personnel from locations they are using for storage.

C12.5.8.3.3.3. The IMD, based on the NEWQD of the munition with the greatest NEWQD that is reasonably expected to be encountered, applies from intrusive operations to storage sites to prevent propagation to a storage location in event of an accidental explosion during intrusive operations. For distances less than IMD, DDESB-approved engineering controls must be used during intrusive operations.

C12.5.8.3.4. Planned or Established Demolition Areas. A planned or established demolition area is an area used repetitively to destroy munitions during a munitions response. (Such areas may be an existing OD area or a new area planned for intentional detonation.) An ESQD arc must be provided around demolition areas. The size of the ESQD arc will be based on requirements of this Standard (see Chapter 9).

C12.5.8.3.5. Mechanized MEC Processing Operations, Excluding CA-filled Munitions.

C12.5.8.3.5.1. High- and Low-Input Operations. Mechanized MEC processing operations can be classified as either “high-input” or “low-input” based on a risk assessment that considers the degree of energy with which the process would impact any MEC potentially processed.

C12.5.8.3.5.1.1. High-input processing operations (e.g., shredders, crushers) are intended to physically deform material including any MEC being processed and certain excavations depending upon the risk assessment.

C12.5.8.3.5.1.2. Low-input processing operations (e.g., on-site transport, dumping, screening, raking, spreading, sifting, and magnetically separating) are not intended to intentionally deform material including MEC being processed and certain excavations depending upon the risk assessment.

C12.5.8.3.5.2. Personnel Separation Distances

C12.5.8.3.5.2.1. Nonessential Personnel

C12.5.8.3.5.2.1.1. During high-input processing operations, nonessential personnel shall be provided protection for intentional detonations based on the MGFD. (See subparagraph C12.5.8.3.2.2.)

C12.5.8.3.5.2.1.2. During low-input processing operations, nonessential personnel shall be provided protection for accidental (unintentional) detonations (greater of HFD or K40).

C12.5.8.3.5.2.2. Essential Personnel. For both high- and low-input processing operations, essential personnel shall:

C12.5.8.3.5.2.2.1. Be protected by shields or barricades designed to defeat hazardous fragments from the MGFD.

C12.5.8.3.5.2.2.2. Be separated from the operation by K24 based on the munition with the greatest NEWQD that is reasonably expected to be encountered. (NOTE: DDESB-approved overpressure-mitigating engineering controls may be used to provide an equivalent level of protection (2.3 psi) [15.9 kPa]).

C12.5.8.3.6. Intentional Burning of Buildings Contaminated with Explosives Residues that Present an Explosive Hazard. All personnel shall be separated by K328 overpressure distance based on the MCE for the building, but not less than 1,250 feet.

C12.5.8.3.7. ESQD Maps. (The ESQD arcs and the MRA and MRS boundaries may be shown on the same map provided all PES and ES are shown in sufficient detail.)

C12.5.8.3.7.1. ESQD-maps should be to scale and legible per subparagraph C5.4.43.3.2.

C12.5.8.3.7.2. When a map does not contain a scale, all distances must be labeled.

C12.5.8.3.7.3. The ESQD map shall show the following:

C12.5.8.3.7.3.1. Each MRA or MRS.

C12.5.8.3.7.3.2. The storage locations for demolition explosives and for recovered MEC.

C12.5.8.3.7.3.3. Locations (planned or established) for the intentional detonations or burning of MEC, excluding CA-filled munitions. Such locations include areas where contained detonation technology will be used.

C12.5.8.3.7.3.4. All ES and PES and their relationships. (NOTE: Describe any protective measures (e.g., evacuation of inhabited buildings, blocking off public highways) that will be used to eliminate or minimize any exposures within the established exclusion zone.)

C12.5.8.3.7.3.5. All controlling ESQD arcs.

C12.5.8.3.7.4. ESQD Arcs. ESQD arcs must be shown for:

C12.5.8.3.7.4.1. Munitions. The MGFD shall be used for ESQD purposes for any particular MRA or MRS. However, if a munition with a greater fragmentation distance is encountered during the conduct of a munitions response, the ESQD arcs must be adjusted and the ESS or explosives safety site plan must be amended.

C12.5.8.3.7.4.2. Explosive Soil. To determine the ESQD arc for explosive soil, calculate the MCE by multiplying the weight of the mix by the concentration of explosives (e.g., 1,000 lb [453.60 kg] of soil containing 15 percent TNT has an MCE of 150 lb [68 kg]). When concentrations vary within the site, weighted averages or other valid mathematical technique can be used to determine the exclusion zone; however, the ESS must support their use. The MSD for nonessential personnel shall be the greater of IBD for overpressure or the soil ejecta radius per the Buried Explosion Module (BEM) contained in Reference (~~pr~~) or other DDESB-approved procedures (see Reference (j)).

C12.5.8.3.7.4.3. Real Property (Buildings and Installed Equipment). For real property that is known or suspected to be contaminated with explosives residues that present an explosive hazard, and that is slated for cleanup or dismantlement, the MCE will be estimated on a case-by-case basis. The ESS shall include the rationale used for the estimation.

C12.5.8.3.8. Soil Sampling Maps. When the property involves concentrations of explosives in the soil that are high enough to present an explosive hazard (see subparagraph C12.4.1.):

C12.5.8.3.8.1. Provide a map that indicates areas that were determined to contain explosive soil.

C12.5.8.3.8.2. Address methods (e.g., blending, bio-remediation) to be used to reduce explosives concentrations to a non-reactive level.

C12.5.8.3.8.3. Address methods (e.g., wetting the soil before blending) to be used to reduce any explosive hazards.

C12.5.8.4. Types of MEC. Based on research or data generated from characterization of the MRA or MRS, provide the types of MEC expected to be encountered during munitions response activities.

C12.5.8.5. Start Date. Provide the expected date that munitions response activities that involve the placement of explosives on a site, the intentional physical contact with MEC, or the conduct of ground-disturbing or intrusive activities in areas known or suspected to contain MEC are scheduled to start. Indicate the potential consequence, if any, if DDESB approval does not occur by the start date. (Site preparation activities (e.g., surveying, gridding, or locating anomalies) may be conducted while awaiting DDESB approval of an ESS.)

C12.5.8.6. MEC Migration. Describe naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal changes) that could cause the migration or exposure of MEC, and procedures for monitoring and managing such.

C12.5.8.7. Detection Equipment and Response Techniques. The intent of this section is to describe the capabilities of detection equipment relative to the degree of removal required to support the current, determined, or reasonably anticipated end use.

C12.5.8.7.1. Describe the techniques to be used to detect and remove MEC.

C12.5.8.7.2. Identify the types of detection equipment to be used and the areas in which they will be employed.

C12.5.8.7.3. Summarize methods used (e.g., test plots) to establish the expected detection capabilities of the equipment used. If anomaly discrimination will be used, explain what methods will be used to establish the expected accuracy of the discrimination.

C12.5.8.7.4. When describing the detection methods:

C12.5.8.7.4.1. Describe the rationale (e.g., best available technology based on geology, topography, munitions characteristics, resource requirements) used to select the detection methods and technologies to be used during the response.

C12.5.8.7.4.2. Address any limitations (e.g., equipment, terrain, soil type) and mitigating actions, if any.

C12.5.8.7.4.3. Describe quality assurance and quality control (QA/QC) standards and pass or fail criteria for QA/QC control audits.

C12.5.8.8. Disposition Techniques

C12.5.8.8.1. MEC, Excluding CA-Filled Munitions

C12.5.8.8.1.1. Briefly, describe the MEC, excluding CA-filled munitions, disposition techniques (e.g., OB, OD, contained detonation, incineration) to be used.

C12.5.8.8.1.2. When recovered MEC, excluding CA-filled munitions, cannot be destroyed within the MRA or MRS, address how explosives safety requirements will be met during transportation and during offsite storage, treatment, or disposal. (NOTE: Disposition actions should consider requirements applicable to waste military munitions.)

C12.5.8.8.2. Material Potentially Presenting an Explosive Hazard (MPPEH). Describe the process to be used to manage MPPEH (see Chapter 16).

C12.5.8.9. Environmental, Ecological, Cultural and Other Considerations. Address any environmental, ecological (e.g., endangered species), cultural (e.g., tribal spiritual or gathering sites) and other factors that impacted, from an explosives safety perspective, the selection of the munitions response.

C12.5.8.10. Technical Support. Summarize EOD, U.S. Army Forces Command/20th Support Command/22nd Chemical Battalion, or UXO-technician or UXO-qualified personnel support that may be required. (NOTE: U.S. Army Forces Command/20th Support Command/22nd Chemical Battalion is manned with specially trained personnel that provide verification, sampling, detection, mitigation, render safe, decontamination, packaging, escort, and remediation of chemical, biological and industrial devices or hazardous materials.)

C12.5.8.11. Residual Risk Management. Address:

C12.5.8.11.1. LUC. The ESS must summarize any LUC to be implemented and maintained on the property.

C12.5.8.11.2. Long-Term Management. The ESS must address how any potential residual risks will be managed.

C12.5.8.12. Safety Education Program. Address methods to be used to educate the public on the risks associated with MEC and CA, regardless of CA configuration.

C12.5.8.13. Stakeholder Involvement. Briefly, summarize how stakeholder concerns affecting the explosives safety aspects of the selected munitions response were addressed.

C12.5.8.14. Contingencies. To reduce the need to submit amendments (see subparagraph C12.6.1.), an ESS may describe alternative actions that could be used to address contingencies. As an example, an ESS may list alternative DDESB-approved engineering controls (see Reference (j)) that may be used under specified conditions.

C12.5.8.15. Unexpected CA Discoveries. Should CA, regardless of its configuration, be discovered during munitions responses to MEC, excluding CA-filled munitions, all onsite activities shall be halted until the need for a CWM response is evaluated and a decision is approved by the Service-level explosives safety office. If it is decided that a CWM response is necessary, response actions that involve the intentional physical contact with CA, regardless of configuration, or the conduct of ground-disturbing or other intrusive activities in areas known or suspected to contain CA shall not begin until the required CSS or CWM site plan is approved by the DDESB.

C12.5.9. Selected CWM Response CSS and CWM Site Plans

C12.5.9.1. General

C12.5.9.1.1. A response in an area (e.g., a munitions response in an MRA or MRS) that is known or suspected to contain CA, regardless of configuration, must include a CWM site plan for an Interim Holding Facility (IHF) and, when the use of onsite destruction technology is planned, for the site at which those destruction activities will occur. Generally, the information required in a CSS parallels that for an ESS (see subparagraph C12.5.8.); however, such information will be tailored to address CWM.

C12.5.9.1.2. A CSS is not required for certain activities on a site with a history of CA-related activities when an installation or district commander, or a command-designated representative, has approved a probability assessment finding for such activities stating that the probability of discovering CA is expected to be “seldom” or “unlikely.” However, the site safety and health plan must include contingency plans providing for the safe and expeditious evacuation of the site in the event CA is discovered. Should CA, regardless of configuration, be discovered during these activities, all onsite activities shall be halted until the need for a CWM response is evaluated and a decision is approved by the Service-level explosives safety office. If it is decided that a CWM response is necessary, response actions that involve the intentional physical contact with CA, regardless of configuration, and/or the conduct of ground-disturbing or other intrusive activities in areas known or suspected to contain CA shall not begin until the required CSS or CWM site plan is approved by the DDESB.

C12.5.9.2. Explosives Hazards. When explosives hazards are known or suspected to exist along with CA hazards within a response area (e.g., the MRA or MRS), a submission that addresses both explosives safety (see subparagraph C12.5.8.) and CA safety (as outlined in this section) is required.

C12.5.9.3. Background. (See subparagraph C12.5.8.1.)

C12.5.9.4. Maps. The maps provided with a CSS must meet the requirements of subparagraph C12.5.8.2. In addition, the One Percent Lethality Distance and the IBD shall be shown.

C12.5.9.5. Chemical Agent Hazards. When CA hazards are known or suspected to exist within a response area (e.g., the MRA or MRS), the CA downwind hazard must be considered when determining the MSD. The CSS shall provide the following information:

C12.5.9.5.1. A description of the CA MCE.

C12.5.9.5.2. A description of how essential and nonessential personnel and the public will be protected should the CA MCE occur (see Chapter 11 for basic personnel protection requirements (e.g., hazard zones and protective equipment) for operations involving CWM). If an Engineering Control (EC), which has not been DDESB-approved, is to be used to provide such protection, the CSS must include the technical data substantiating the new engineering control's effectiveness. EC may be used for:

C12.5.9.5.2.1. Protection from overpressure and fragments when explosively configured CWM are known or suspected.

C12.5.9.5.2.2. Protection from CA effects (prevent vapor releases to the environment) during both response activities and when RCWM is stored in the IHF.

C12.5.9.6. RCWM Hazard Classification and Storage

C12.5.9.6.1. RCWM, suspected or confirmed, regardless of its configuration, must be stored separately from serviceable munitions and from other MEC. Additionally, suspect RCWM shall be stored separately from all other munitions and from RCWM.

C12.5.9.6.2. Suspect and known RCWM shall be managed as HD 1.1 until stowed in an approved overpack container or until determined not to be RCWM (see subparagraph C12.5.8.3.3) or to be non-explosively configured RCWM (see subparagraph C12.5.9.6.4.). (NOTE: The CA downwind hazard must be considered, with the greater of the two distances used for siting purposes.)

C12.5.9.6.3. Explosively-configured RCWM in an approved overpack container shall be managed as HD 1.2.1 with an explosive MCE of one round or HD 1.2.2, based on its NEWQD. Such storage may be considered HD 1.1 if advantageous for computing HFD using DDESB-approved procedures. (See Reference (pr).) (The CA downwind hazard must be considered, with the longer of the two distances used for siting purposes.)

C12.5.9.6.4. Non-explosively configured RCWM shall be managed as HD 6.1. (The CA downwind hazard must be used for siting purposes.)

C12.5.9.7. CWM Site Plan. A DDESB-approved CWM Site Plan for an IHF is required when CA, regardless of configuration, is known or suspected to exist on a response area. The IHF Site Plan, which is based on the worst-case CA configuration expected to be encountered, is included in the CSS. The IHF site plan shall:

C12.5.9.7.1. Identify the public access exclusion distance (PAED).

C12.5.9.7.2. Identify all associated ESQD arcs (see subparagraph C12.5.8.3.).

C12.5.9.7.3. Address the evacuation procedures for personnel within the PAED.

C12.5.9.7.4. Address any security measures and access controls for the IHF.

C12.5.9.7.5. Address any EC that will be used to mitigate a CA release during IHF activities, such as:

C12.5.9.7.5.1. Static storage within the IHF.

C12.5.9.7.5.2. RCWM assessment activities (e.g., X-ray, portable isotopic neutron spectroscopy (PINS)).

C12.5.9.7.5.3. Transportation preparation activities (e.g., transloading of multiple round containers (MRCs), MRC movement into or out of the IHF).

C12.5.9.7.6. Address soil sampling maps. (See subparagraph C12.5.8.3.8.).

C12.5.9.7.7. Address types of CA. (See subparagraph C12.5.8.4.).

C12.5.9.7.8. Address start date. (See subparagraph C12.5.8.5.).

C12.5.9.8. Detection Equipment and Response Techniques. (See subparagraph C12.5.8.7.)

C12.5.9.9. Disposition Techniques

C12.5.9.9.1. CA, Regardless of Configuration

C12.5.9.9.1.1. Briefly, describe the disposition techniques (e.g., onsite destruction) to be used.

C12.5.9.9.1.2. When RCWM cannot be destroyed on site, address how CA safety and, if applicable, explosives safety requirements, will be met during transportation and during offsite storage, treatment or disposal. (Disposition actions should consider guidance applicable to waste military munitions.)

C12.5.9.9.2. MPPEH. Describe the process to be used to manage MPPEH. (See Chapter 16.)

C12.5.9.10. Environmental, Ecological, Cultural, and Other Considerations. (See subparagraph C12.5.8.9.).

C12.5.9.11. Technical Support. (See subparagraph C12.5.8.10.).

C12.5.9.12. Residual Risk Management. (See subparagraph C12.5.8.11.).

C12.5.9.13. Safety Education Program. (See subparagraph C12.5.8.12.).

C12.5.9.14. Contingencies. (See subparagraph C12.5.8.14.).

C12.5.9.15. Unexpected MEC or Explosively Configured CWM Discoveries. Should unexpected MEC or explosively configured CWM be discovered during a CWM response, all onsite activities that involve intentional physical contact with such MEC or explosively configured CWM, or the conduct of ground-disturbing or other intrusive activities in areas known or suspected to contain such MEC or explosively configured CWM, shall be halted until the newly identified explosive hazards are evaluated and the DDESB approves all required CSS amendments or explosives site plans.

C12.6. AMENDMENTS AND CORRECTIONS

An amendment or correction to an approved ESS or CSS does not require the resubmission of the complete ESS or CSS package. However, the information submitted must be in sufficient detail to identify the specific ESS or CSS being amended or corrected, the affected portions, and the precise amendments or corrections.

C12.6.1. Amendments. Amendments are only required when a change to an approved ESS or CSS increases explosives safety or CA risks, identifies requirements for additional or increased explosive or CA hazard controls, or increases or decreases an ESQD arc.

C12.6.1.1. An amendment requires DDESB approval before the affected response actions can continue. However, response actions need not be stopped pending such approval provided:

C12.6.1.1.1. The amendment pertains to an area (e.g., MRA or MRS) for which an ESS or CSS has already been approved; and,

C12.6.1.1.2. The DoD Component:

C12.6.1.1.2.1. Institutes protective measures (e.g., increased ESQD, use of DDESB-approved EC) to address any explosive or CA hazards.

C12.6.1.1.2.2. Accepts the possibility that the DDESB approval process may impose different or additional explosives safety or CA safety requirements.

C12.6.1.2. If the amendment is for a new response area (e.g., a new MRS), then the DDESB must approve the amendment before intrusive activities begin in the new response area.

C12.6.1.3. To allow the response to continue with minimal interruption, amendments should be processed by electronic means.

C12.6.1.4. Changes that require an amendment include:

C12.6.1.4.1. Constraints in funding, technology, access, and other site-specific conditions that impact the degree of removal addressed in the approved ESS or CSS.

C12.6.1.4.2. Any increase or decrease of the ESQD arcs.

C12.6.1.4.3. A change in operations requiring explosives siting or re-siting of an IHF for CWM.

C12.6.1.4.4. Changes in LUC or long-term management to address residual risks. Such changes would not require intrusive activities to stop while the amendment is being processed.

C12.6.2. Corrections. Corrections address changes to an approved ESS or CSS that do not increase explosives safety or CA risks or exposures. Corrections:

C12.6.2.1. Do not require approval.

C12.6.2.2. Are primarily administrative in nature and provided for information purposes.

C12.7. AAR

C12.7.1. An AAR for completed munitions or CWM responses is a required feature of all DDESB-approved ESS or CSS. The AAR's purpose is to document that the explosives and chemical safety aspects of the selected response have been completed per the approved ESS or CSS. In most cases, a "Statement of MEC Removal" or "Statement of Munitions Response MEC Removal Actions" fulfills the requirements in subparagraphs C12.7.52.4. through C12.7.2.8. The DDESB Staff shall acknowledge receipt of an AAR, and raise any issues that require resolution before land transfer or an alternative use can safely proceed.

C12.7.2. The AAR:

C12.7.2.1. Shall be submitted to the DDESB through the responsible DoD Component.

C12.7.2.2. May be submitted electronically.

C12.7.2.3. Will remain part of the DDESB's action file; however, DoD Components continue to be responsible for complying with all recordkeeping requirements.

C12.7.2.4. Shall summarize the MEC or CA, regardless of CA configuration, found.

C12.7.2.5. Shall describe the relative effectiveness and any limitations of the technologies used during the munitions response or CWM response and the effects on residual risk relative to that originally projected.

C12.7.2.6. Shall include maps showing:

C12.7.2.6.1. Areas from which MEC or CA, regardless of CA configuration, was removed.

C12.7.2.6.2. Areas within a response area (e.g., within a MRA or MRS) where response actions were not performed and the rationale for not addressing those areas.

C12.7.2.6.3. The known or reasonably anticipated end use of each area.

C12.7.2.7. Shall summarize the LUC that were implemented, if any, and the areas to which they apply.

C12.7.2.8. Shall address provisions for long-term management.

C12.8. TRANSFER OF REAL PROPERTY OUTSIDE OF DoD CONTROL

Pursuant to DoD ~~guidance on real property disposal~~ *Instruction 4165.72 (Reference (al))*, real property known to contain or suspected of containing explosive or CA hazards may not be transferred out of DoD control (other than to the Coast Guard) until the Chairman, DDESB, has approved measures submitted by the transferring Component to ensure the recipient of the property is fully informed of both the actual and potential hazards relating to the presence or possible presence of explosives or CA, and restrictions or conditions placed on the use of the property to avoid harm to users due to the presence of explosives or CA.

C12.8.1. Notices. A recipient of such DoD property shall be provided:

C12.8.1.1. Details of any past removal or remedial actions, including:

C12.8.1.1.1. The degree of MEC or CA removal.

C12.8.1.1.2. The process used to determine that degree of removal to be adequately protective.

C12.8.1.2. Written notification that detection and removal methods are not 100 percent effective, and that residual hazards may remain in areas (e.g., MRS) that were subjected to response actions.

C12.8.2. Restrictions and Conditions. Based on potential explosive and CA hazards present and the projected use of the property, the following types of use restrictions and conditions shall be imposed, as appropriate, on such DoD property:

C12.8.2.1. A prohibition on excavation or drilling in any areas known or suspected to contain MEC or CA, regardless of CA configuration, without appropriate permits or assistance.

C12.8.2.2. A prohibition on disturbing, removing, or destroying any found MEC or CA, regardless of CA configuration.

C12.8.2.3. A requirement to immediately notify local law enforcement representatives of any discovery of MEC or CA, regardless of configuration.

C12.8.2.4. A prohibition on the construction or installation of particular improvements including utilities, roadways, airstrips, navigable waterways, pipelines, and structures, both above and below ground.

C12.8.2.5. A prohibition on specific alterations, extensions, or expansions to such improvements.

C12.8.2.6. A prohibition on certain types of uses, such as child care centers, housing, or farming.

C12.8.2.7. A restriction to a specific type of use or owner, such as a state National Guard range.

C12.8.2.8. Inclusion of DoD Component explosives and CA safety personnel and the Chairman, DDESB, in deliberations, decision making, and approvals pertaining to future munitions response activities to address MEC or CA, regardless of CA configuration.

C12.8.2.9. Inclusion of the restrictions and conditions in the recorded land records for the jurisdiction, to the extent allowed by state law.